

# 承 认 书 DATA SHEET

Customer name:		
BERYL SERIES:	RJ	TYPE: RADIAL
DESCRIPTION:	100uF/100V	Ф10*16
Apply date :	2020-10-22	

BERYL		CUSTOMER			
P/N:RJ100M101LO10*	16TH-2A1Et	P/N:			
PREPARED CHECKED	APPROVAL	PREPARED	CHECKED	APPROVAL	
孔祥伟 工 穆梅君	刘高树				

After approved, please sign back 1 Approval Sheet before order. If not, we will treat it as tacitly acknowledged and accepted our relative standard and technical index.

# Zhao Qing Beryl Electronic Technology Co., Ltd.

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# Revise record

NO.	Date	Revise reason	Revise content	Prepared
01	2020.10.22	First issue	First issue	孔祥伟

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### 1, Application

This specification applies to Aluminum electrolytic capacitor (foil type) used in electronic equipment. Designed capacitor's quality meets IEC 60384.

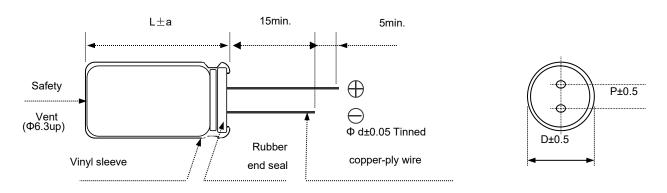
### 2. Table of specification and characteristics

Series	Cap(uF) 120Hz/20°C	WV(V)	Size	(mm)	Temperature (°C)				-		-		Temperature (°C)		_				_	Life(hours)
	120112,20 0		D	L			Toterunee													
RJ	100	100	10	16	-40~+1	.05	±20%	10000												
DF (%)(MAX) 120Hz/20°C		Lc(μA)(I 2min/2		ESR(Ω)( 100KH			RC (mArms) (MAX)105°C /100KHz	Surge voltage(V)												
	≤8 ≤100 ≤0.18		≤1040	115																

#### Other:

# 3. Product Dimensions

Type

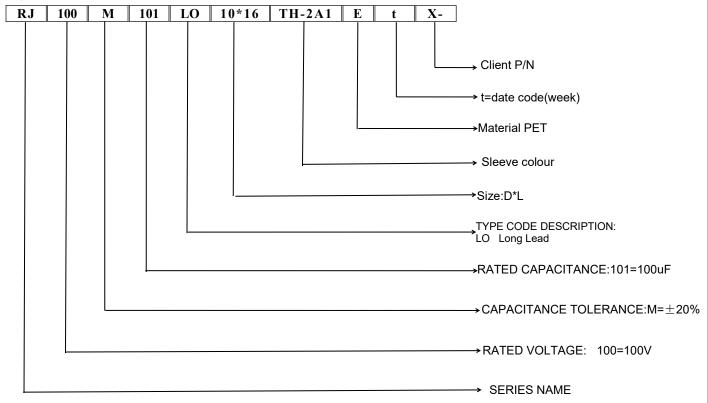


ΦD	5	6.3	8	10	13	16	18
Р	2.0	2.5	3.5	5.0	5.0	7.5	7.5
Фd	0.5	0.5	0.5/0.6	0.6	0.6	0.8	0.8
α	(L<	20) ± 1.5	(L≥	20) ± 2.0			

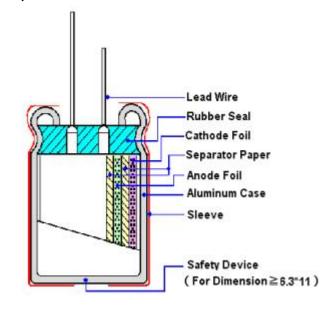
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### 4. Part Number



### 5, Construction

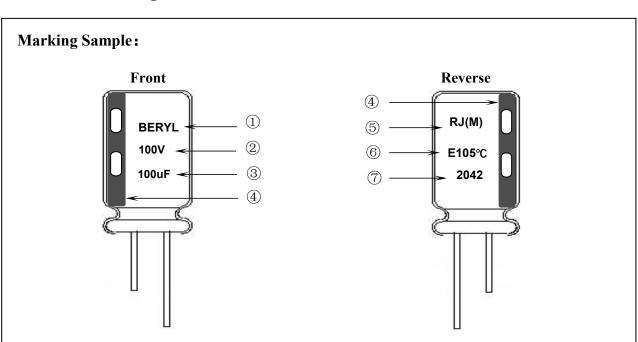


Material name	Composition	Supplier name	
Lead	Al and (Fe+Cu+Sn)	NM、JX	
Rubber	EPT / IIR	LHX、LA、TH、LM2	
Case	Aluminum	OX、YJ、HL、LY2	
Paper	Wood / Fibrous plant materials	KE、DF	
Anode foil	$Al + Al_2O_3$	HY1、HY2、HF、HY3、 LD、FQ	
Cathode foil	Aluminum	GY、LY1	
Electrolyte	Glycol + Water +Ammonium salt	XZB、LM1、JZ2、FS	
Sleeve	PET	YL, CY	

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### 6, Product Marking



#### **Marking Details:**

Capacitor shall be marked the following items:

- 1) Trademark (BERYL)
- 2) working voltage(100V)
- 3) Nominal capacitance(100uF)
- 4) Cathode marked
- 5) Series symbol & Nominal capacitance tolerance (M: -20% ~ +20%)
- 6) Sleeve material(E: PET)

Maximum operating temperature(105°C)

7) Date code (2042)

20: Manufactured year 2020

Code	20	21	22	23	24	25	26	27	
Year	2020	2021	2022	2023	2024	2025	2026	2027	

42: Manufactured week (01, 02, 03, 04......51, 53)

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#### 7. Characteristics

#### **Standard atmospheric conditions**

Unless other specified, the standard range of atmospheric conditions for making measurements and tests is as follows:

Ambient temperature : 15°C to 35°C
Relative humidity : 45% to 85%
Air pressure : 86kPa to 106kPa

If there is any doubt about the results, measurement shall be made within the following conditions:

Ambient temperature :  $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Relative humidity : 60% to 70%Air pressure : 86kPa to 106kPa

#### **Operating temperature range**

The ambient temperature range at which the capacitor can be operated continuously at rated voltage is  $(6.3\sim100 \text{WV})$  -40°C to +105°C.

#### **Table**

	ITEM	PERFORMANCE
1	Nominal capacitance (Tolerance)	<b>Condition&gt;</b> Measuring Frequency: 120Hz±12Hz Measuring Voltage: Not more than 0.5Vrms +1.5~2.0V.DC Measuring Temperature: 20±2°C <b>Criteria&gt;</b> Shall be within the specified capacitance tolerance.
2	Leakage current	$ \begin{array}{l} <\!$
3	Dissipation factor	<condition> Nominal capacitance, for measuring frequency, voltage and temperature.  <criteria> Must be within the parameters (See page 3)</criteria></condition>

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	ITEM	PERFORMANCE				
4	Impedance	<condition> Measuring frequency:100kHz; Measuring temperature:20±2°C Measuring point: 2mm max. from the surface of a sealing rubber on the lead wire.  <criteria> (20°C) Must be within the parameters (See page 3)</criteria></condition>	Measuring frequency:100kHz; Measuring temperature:20±2°C Measuring point: 2mm max. from the surface of a sealing rubber on the lead wire. <criteria></criteria>			
5	Load life test	Condition> According to IEC60384-4No. 4.13 methods, the capacitor is stored at a temperature of Maximum operating temperature ±2°C with DC bias voltage plus the rated ripple current for Rated life +48/0hours. (The sum of DC and ripple peak voltage shall not exceed the rated working voltage) Then the product should be tested after 16 hours recovering time at atmospheric conditions. The result should meet the following table: *Criteria> The characteristic shall meet the following requirements. Leakage current Not more than the specified value. Capacitance Change Within ±25% of initial value. Dissipation Factor Not more than 200% of the specified value. Appearance There shall be no leakage of electrolyte.				
6	Shelf life test	temperature±2°C for1000+48/0 hours. Following this period, the capacitors shall be remo	<b>Condition&gt;</b> The capacitors are then stored with no voltage applied at a temperature of Maximum operating temperature±2°C for1000+48/0 hours. Following this period, the capacitors shall be removed from the test chamber and be allowed to stabilized at room temperature for16 hours. measure leakage current <b>Criteria&gt;</b> The characteristic shall meet the following requirements. Leakage current The specified value Capacitance Change Within ±25% of initial value. Dissipation Factor Not more than 200% of the specified value.			
7	Maximum permissible (ripple current, temperature coefficient)	Condition> The maximum permissible ripple current is the maximum A.C current at 100kHz and can be applied at maximum operating temperature Table-3 The combined value of D.C voltage and the peak A.C voltage shall not exceed the rated voltage and shall not reverse voltage. Frequency Multipliers: Freq (Hz) 120				

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# **ALUMINUM ELECTROLYTIC CAPACITORS**

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	ITEM			PER	FORMAN	CE			
8	Terminal strength	Condition> Tensile strength of terminals Fixed the capacitor, applied force to the terminal in lead out direction for30+5-0 seconds. Bending strength of terminals. Fixed the capacitor, applied force to bent the terminal (1~4 mm from the rubber) for 90° 2~3 seconds, and then bent it for 90° to its original position within 2~3 seconds.    Diameter of lead wire					r) for 90° within		
9	Temperatur e characterist ics	Criteria> <ul> <li>a. At +105</li> <li>Dissipat</li> <li>The leak</li> <li>b. In step 5</li> <li>Dissipat</li> <li>The leak</li> </ul>		±2 25±3 ±2 ±2 bedance shall be measured at + be within the lasured shall no neasured at +20 be within the lall not more than	20°C shall be the more than 0°C shall be imit of Item n the specif	each therm each therm each therm at 120Hz.  The within ± 10, 7.3 and times of within ±10, 7.3 and the value of the seach therm at 120Hz.	al equilial equilibrium equ	brium brium brium tits origin	ilue. value.
10	Surge test	<ul> <li><a href="#">Condition</a></li> <li>Applied a surge voltage to the capacitor connected with a (100 ±50)/CR (kΩ) resistor in series for 30±5 seconds in every 5±0.5 minutes at 15~35°C. Procedure shall be repeated 1000 times. Then the capacitors shall be left under normal humidity for 1-2 hours before measurement</li> <li>CR: Nominal Capacitance (μF)</li> <li><a href="#">Criteria&gt;</a></li> <li>Leakage current</li> <li>Capacitance Change</li> <li>Within ±15% of initial value.</li> <li>Dissipation Factor</li> <li>Not more than the specified value.</li> <li>Appearance</li> <li>There shall be no leakage of electrolyte.</li> <li>Attention:</li> <li>This test simulates over voltage at abnormal situation only. It is not applicable to such over voltage as often applied.</li> </ul>						eated	



	ITEM	PERFORMANCE					
		<condition> Temperature cycle: According to IEC60384-4 N according as below:</condition>	Io.4.7 methods, capacito	r shall be placed in an over	n, the condition		
		Te	emperature	Time			
		(1) +20°C		3 Minutes			
	Change of	(2) Rated low tempera	ture (- 40°C) (-25°C)	30±2 Minutes			
11	temperature test	(3) Rated high tempera	ature (+105°C)	30±2 Minutes			
		(1) to (3) =1 cycle, tota	al 5 cycle				
		Criteria> The characteristic shall meet	t the following requireme	ent			
		Leakage current	Not more than the s				
		Dissipation Factor	Not more than the s	specified value.			
			Appearance	There shall be no le	eakage of electrolyte.		
12	Damp heat test	be exposed for 500±8 hours	Humidity test: According to IEC60384-4 No.4.12 methods, capacitor shall be exposed for 500±8 hours in an atmosphere of 90~95%R H .at 40±2°C, the characteristic change shall meet the following requirement.  **Criteria**  Leakage current Not more than the specified value.  Capacitance Change Within ±10% of initial value.  Dissipation Factor Not more than 120% of the specified value.				
13	Solderabilit y test	Condition> The capacitor shall be tested under the following conditions: Soldering temperature : 245 ±5°C Dipping depth : 2mm Dipping speed : 25±2.5mm/s Dipping time : 3±0.5s  Criteria> Soldering wetting time   Less than 3s Coating quality   A minimum of 95% of the surface being immersed					

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	ITEM	PERFORMANCE					
		Condition> The following conditions shall be applied for 2 hours in each 3 mutually perpendicular directions. Vibration frequency range : 10Hz ~ 55Hz each to peak amplitude : 1.5mm Sweep rate : 10Hz ~ 55Hz ~ 10Hz in about 1 minute Mounting method: The capacitor with diameter greater than 12.5mm or longer than 25mm must be fixed in place with a bracket.					
14	Vibration test	4mm or less Within 30°					
		<criteria> To be soldered</criteria>					
		After the test, the following items shall be tested:    No intermittent contacts, open or short circuiting.   No intermittent contacts, open or short circuiting.					
		No damage of tab terminals or electrodes.  No mechanical damage in terminal. No leakage of electrolyte or swelling of the case. The markings shall be legible.					
	Resistance	<b>Condition&gt;</b> Terminals of the capacitor shall be immersed into solder bath at 260±5°Cfor10±1seconds or400±10°Cfor3 <sup>-0</sup> seconds to 1.5~2.0 mm from the body of capacitor. Then the capacitor shall be left under the normal temperature and normal humidity for 1~2 hours before measurement. <b>Criteria&gt;</b>					
15	to solder heat	Leakage current Not more than the specified value.					
	test	Capacitance Change Within ±5% of initial value.					
		Dissipation Factor Not more than the specified value.					
		Appearance There shall be no leakage of electrolyte.					
16	Vent test	Condition> The following test only apply to those products with vent products at diameter ≥Ø6.3 with vent. D.C. test The capacitor is connected with its polarity reversed to a DC power source. Then a current selected from Table 2 is applied. Cable 2> Diameter (mm) DC Current (A)					
		22.4 or less   1   Criteria>   The vent shall operate with no dangerous conditions such as flames or dispersion of pieces of the capacitor and/or case.					

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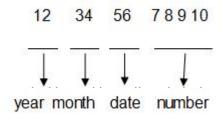


### 8. Packing Information

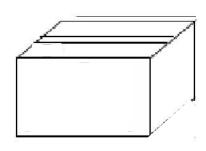
Packing Label Marked (the following items shall be marked on the label) (Inside box or bag)

(1)Clint order number (2)Client part number (3)Beryl part number (4)Capacitance (5)Voltage (6)Dimension (7)Packaging quantity (8)Capacitance tolerance (9) QC Marking (10) Lot number (11) Series

#### LOT Number:



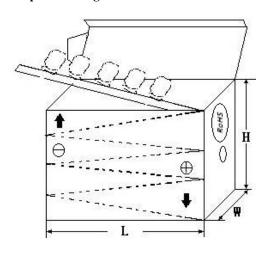
#### 1) Bulk Packing:



#### 3) Outer box



#### 2) Taped Packing:



#### 4) Outer box label:

	Thanin	Ltd.		Technology Co.,
C.S.R:			B UA HE	
C.S.R P/O:				ROHS HE
C.S.R P/N:				
S.P.R P/N:				QC
SPEC:				
QTY:	PCS	TOL:	%	
L/N:		S.P.R:		8

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#### 9. Prohibition to Use Environment- related Substances

We are hereby to certify the followings:

Our company hereby warrants and guarantees that all or part of products, including, but not limited to, the peripherals, accessories or package, delivered to your company (including your subsidiaries and affiliated companies) directly or indirectly by our company are free from any of the substances listed below.

The latest version of <Substances Prohibited as per RoHS or <Sony-SS-00259>

	Cadmium and cadmium compounds			
Accord with	Lead and lead compounds			
heavy metal	Mercury and mercury compounds			
	Hexavalent chromium compounds			
	Polychlorinated biphenyls (PCB)			
0	Polychlorinated naphthalenes (PCN)			
Organic chlorin compounds	Polychlorinated terphenyls (PCT)			
	Chlorinated paraffins (CP)			
	Other chlorinated organic compounds			
Organic	Polybrominated biphenyls (PBB)			
bromine	Polybrominated diphenylethers (PBDE)			
compounds	S Other brominated organic compounds			
Tributyltin compo	bunds			
Triphenyltin com	pounds			
Asbestos				
Specific azo compounds				
Formaldehyde				
Polyvinyl chloride	e (PVC) and PVC blends			
F、Cl、Br、I				
REACH				

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# Test Report

Series	RJ	Spec.	100uF/100V	Size(mm)	10*16
Cap tolerance	±20%	Work temperature	105°C	Color of Tube	gold marking on green sleeving
Test date	2020-10-22	Test humidity	40%	Test temperature	26.8°C

Items	Cap (μF)	D.F (%)	L.C (μA)	ESR (Ω)	Appearance
NO.	80~120 (120Hz)	≤8 (120Hz)	≤100 (2min)	≤ 0.18 (100KHz)	ОК
1	96.77	3.00	10	0.0921	ОК
2	95.09	2.81	19	0.0942	ОК
3	92.77	2.67	22	0.0936	ОК
4	93.69	2.50	14	0.0931	ОК
5	95.74	2.42	15	0.0932	ОК
6	92.70	2.36	16	0.0922	ОК
7	91.77	2.70	20	0.0930	OK
8	91.00	2.14	18	0.0934	ОК
9	94.70	2.36	15	0.0925	ОК
10	92.74	2.15	16	0.0936	ОК
Opinion					

Approve: 廖梅君Audit: 孔祥伟Test: 赵凯群

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NEVH1.0M250AB NEVH3.3M250BB NEVH3.3M450CC KME50VB100M-8X11.5 SG220M1CSA-0407 ES5107M016AE1DA

ESMG160ETD102MJ16S ESX472M16B 227RZS050M 476CKH100MSA 477RZS050M B41793A9108Q1 UVX1V101KPA1FA

UVX1V222MHA1CA KME25VB100M-6.3X11 VTL100S10 VTL470S10 VTL470S16A 511D336M250EK5D 052687X ECE-A1CF471

NRE-S560M16V6.3X7TBSTF RGA221M1CTA-0611G ERZA630VHN182UP54N UPL1A331MPH SK035M0100AZS-0611

NEV1000M6.3DE NEV100M16CB NEV100M50DD-BULK NEV2200M16FF NEV220M50EE NEV2.2M50AA NEV330M63EF

NEV4700M35HI NEV4.7M100BA NEV47M16BA NEV47M50CB-BULK